AUSTRALIAN
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SOCIETY

NEWS BULLETIN

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AUSTRALIAN ENTOMOLOGICAL SOCIETY

NEWS BULLETIN, VOLUME 8, PART 1, FEBRUARY 1972

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Articles, Notes, Letters to the Editor and other material for the News Bulletin should be sent to the News Bulletin Editor, or to your Regional Councillor.

RESIGNATION OF DR. F.J.D. McDONALD AS NEWS BULLETIN EDITOR

Owing to an increase in his other commitments, Dr. F.J.D. McDonald has found it necessary to resign as News Bulletin Editor. He was appointed Editor early in 1969, to succeed Dr. C.N. Smithers, and has been responsible for editing three complete volumes of the publication. Members will have noted the growth of the News Bulletin during his term of office, and will, we are sure, wish to join the Executive in thanking Dr. McDonald for his work for the Society.

The Executive has appointed Mr. P. Ferrar News Bulletin Editor for the remainder of the term, and he will combine this task with his present appointment as Assistant Secretary.

P.B. Carne
SECRETARY

EDITORIAL

This is YOUR News Bulletin

At any informal gathering of entomologists there is usually a lively exchange of news, ideas and opinions, which helps to keep the subject vital and productive. However, in a country the size of Australia it is inevitable that many entomologists cannot attend the few general meetings that are held, and any society such as this must find a way to involve all its members as much as possible in its affairs, and provide means of exchanging news and ideas.

The News Bulletin exists to fill this need, and I would like to see it used regularly by our members to exchange information and ideas. Have you changed your job? - send in a personal note. Have you made an overseas visit? - why not write down a few impressions? (Overseas members could contribute here too.) Have you scientific observations that are too short, or too tentative, for the Journal? - send them to the Bulletin (tentative ones can be opened for discussion). Do you seek information, or specimens? - send in a request. If you are an amateur entomologist, do not hold back because many contributors are professionals: the wider the range of contributors the greater will be the interest and benefit to all.

This is YOUR News Bulletin - please use it!

P. Ferrar

EXECUTIVE REPORT

MEETINGS:

The Executive met on 26 October, 30 November, 21 December and 25 January.

MEMBERSHIP:

Since the last report, six new members have been elected, but four members have resigned and there were twelve cessations of membership. The Society now has 409 members, with the following geographical distribution:

Qld.	91	Vic.	53	W.A.	19
N.S.W.	84	S.A.	25	Tas.	20
A.C.T.	66	P.N.G. & N.T.	16	Overseas	33
		Address unknown	2		

Quite a few applicants have been approved for election as soon as their first subscriptions have been received, and we are sure that membership numbers will soon be restored to their former high total.

JOURNAL SUPPLEMENTS:

Three supplements, the List of Members, Constitution and By-laws, should have accompanied members' copies of the Journal, Volume 10 No. 4. Unfortunately the printer omitted to include the supplements with the Journal, and they have been sent to members in separate envelopes.

RESIGNATION OF DR. B.R. CHAMP AS CHIEF EDITOR:

Dr. B.R. Champ, who will shortly leave on an extended overseas journey, has resigned as Chief Editor.

Dr. Champ has edited the Society's *Journal* since its inception in 1965, and before that was the sole Editor of the *Journal*'s predecessor, the Journal of the Entomological Society of Queensland. Thus he has carried editorial responsibility for ten years, and has contributed very substantially to the establishment and growth of Australia's national entomological journal. In addition, he has edited the Society's Miscellaneous Publications and as a member of its Executive, he has been very much involved in the running of the Society.

We wish to record members' sincere appreciation of Dr. Champ's enormous contributions to the Society and to Australian entomology, and we wish him a successful overseas journey.

We are pleased to announce that Dr. K.L.S. Harley has accepted appointment as Acting Chief Editor until the 5 AGM in August of this year.

NEW REPRESENTATIVE COUNCILLOR:

We are very pleased to welcome Mr. Charles McCubbin, President of the Entomological Society of Victoria, as that Society's Representative Councillor.

LIMITATION ON SUBSCRIPTION CONCESSIONS FOR STUDENTS:

Student members, who receive a substantial concession in subscription rates, have been amongst those whose subscription payments are consistently overdue. Overdue subscriptions add to costs, requiring reminder notices and extra postage on publications withheld until payment is received.

The Executive has ruled that, unless students renew their subscriptions by June 30 in any year, they will not be eligible for concession rates.

DIRECTORY OF AUSTRALIAN ENTOMOLOGY:

Material for the Directory is now being prepared in typescript form. It is planned to publish the Directory in July of this year, and to have copies available at the 14 ICE in August.

CONSERVATION COMMITTEE:

Dr. E.N. Marks, representing the Society, gave evidence before the House of Representatives' Select Committee on Wildlife Conservation in early February.

DEATH

We record with regret the death of a Foundation Member of the Society, Mr. A. Holmes, in December 1969.

RESIGNATIONS

Resignations from membership of the Society have been accepted from Dr. A.A.F. Evans (overseas), Mr. P.R. Gunner (S.A.), Mrs. R. Mesa (overseas) and Mr. H.R. Schurr (Vic.).

CESSATIONS OF MEMBERSHIP

The following ceased membership on 31 December 1971, under Clause 22(c) of the Society's Constitution: Dr. G.L. Bush, Mr. R.A. Carver, Mr. N. Clark, Mr. D.W. Edwards, Miss M.J. Gillett, Mr. E.M. Lae, Mr. J.A. Pembery, Mr. W.J.B. Pond, Mr. R. Sticka, Dr. D.G. Warwicke, Prof. Y. Yasue and Mr. I.C. Yeo.

NEW MEMBERS

Elected 26.10.71

Dr. J.R.T. Short, Garran Hall, Australian National
University, P.O. Box 4, Canberra, A.C.T. 2600.

Dr. Short holds the degrees of B.Sc., D. Phil. and D.Sc., and is a Senior Lecturer in Zoology and Warden of Garran Hall. His particular interests are population studies, and general morphology and taxonomy of larval forms, especially of parasitic Hymenoptera.

Elected 30.11.71

Mr. R.J. Akhurst, Riverstone, Main Road, Granton, Tas. 7013.

Mr. Akhurst is an Experimental Officer with the CSIRO Sirex Unit in Hobart, and works on entomophilic nematodes.

Mr. D. de Boer, Ridgley, Tas. 7321.

Mr. de Boer is a graduate forester, and is in charge of silvicultural operations with Associated Forest Holdings Pty. Ltd. at Burnie.

Mr. G.S. Hunt, School of Zoology, University of New South
Wales, P.O. Box 1, Kensington, N.S.W. 2033.

Mr. Hunt is a Tutor and Demonstrator in Zoology, and is interested in the taxonomy and reproductive biology of harvestmen (Arachnida: Opiliones), especially Australian Triaenonychidae.

Mr. Nooruddin, Zoology Department, University of Tasmania,
Hobart, Tas. 7000.

Mr. Nooruddin is a postgraduate student at the university. He has previously published taxonomic studies on Calliphoridae and Tabanidae of the Sind region of Pakistan.

Elected 21.12.71

Mrs. H. Sollers-Riedel, P.O. Box 19009, Washington,
D.C. 20036, U.S.A.

Mrs. Sollers-Riedel was formerly an entomologist with the U.S. Department of Agriculture, and is now working on mosquitoes under a special grant. She is Associate Editor of "Mosquito News", and in 1969 was President of the Entomological Society of Washington.

CHANGES OF ADDRESS AND TITLE

(State of previous residence is shown in brackets)

Various recent changes of address have been incorporated in the printed List of Members that was mailed to members in January. Your attention is drawn to the fact that CSIRO Division of Entomology in Canberra has changed its P.O. Box number: the address is now P.O. Box 1700, Canberra City, A.C.T. 2601.

Two further changes have been notified:

Mr. G.L. Baker, Kuk Tea Research Station, P.O. Box 339,
Mount Hagen, W.H.D., P.N.G. (P.N.G.)

Dr. A. Mesa, Laboratoria de Biologia de Insectos, Avda.
Garzon 780, Montevideo, Uruguay. (Change of title).

Two errors in the printed List of Members have been noted:

Dr. A.J. Wapshere: for Monpellier read Montpellier.

Mr. S. Diczbalis: the address given is incorrect. Mr. Diczbalis's address is at present unknown.

Appeal for addresses:

Mr. S. Diczbalis, formerly of 28 Highland Terrace, St. Lucia, Qld., Mr. J.L. Groom, formerly of the Department of Primary Industries, Mareeba, Qld., and Mr. H.P. Murray, formerly C/- Merck, Sharp & Dohme Pty. Ltd., P.O. Box 128, Campbelltown, N.S.W., have moved and their present addresses are unknown. If you know the address of any of these members, please would you send it to the Secretary.

14 INTERNATIONAL CONGRESS OF ENTOMOLOGY

Over 500 enrolments have been received, but we are expecting a lot of late overseas enrolments. So far, about 130 Australian entomologists have enrolled. A very high proportion of overseas members have submitted requests to read papers. So far we have representatives from 23 countries, and we are expecting late group enrolments from some countries such as Russia. We still do not know to what extent the recently announced reductions in air fares will increase enrolments. It may have come too late for some to take advantage of it.

C.N. Smithers
SECRETARY
14 INTERNATIONAL CONGRESS OF ENTOMOLOGY

ENTOMOLOGICAL NEWS AROUND AUSTRALIA

WESTERN AUSTRALIA

The President of the Society, Dr. D.F. Waterhouse, held a seminar at the CSIRO Laboratories during his visit to Perth in October, to which local members were invited. He gave a most interesting illustrated talk on recent work carried out by CSIRO Division of Entomology, which included the following topics:

> Radar field studies in N.S.W. on the migration of locusts and other insects, and associated atmospheric variations;
>
> Biological control of skeleton weed (*Chondrilla juncea*), a pest of wheat crops, by the introduction of pests and diseases from Europe, including aphids, root-feeding moths, gall mites, rust fungi and mildews, all specific to skeleton weed;
>
> The introduction of scarabaeid dung beetles from South Africa to facilitate the removal of cattle dung in northern Australia and so reduce the numbers of buffalo flies and bushflies breeding in the dung.

In December, a meeting was held at the University Department of Zoology, at which Dr. H.E. Paterson gave a stimulating talk on work carried out there on 'The *Culex pipiens* Complex'. A summary follows:

The *Culex pipiens* complex comprises a group of mosquitoes which have caused a great deal of difficulty to taxonomists and evolutionists alike. This talk briefly reviewed the situation, and certain currently accepted views were questioned. For example, it was argued that the generally held view that *Culex molestus* Forskal is some type of infra-subspecific form of *Culex pipiens pipiens* L. is not tenable, because no known genetical mechanism can account for such an interpretation.

In Western Australia, *Culex molestus, C. fatigans, C. australicus* and *C. globocoxitus* occur together in very close contact, and yet close study reveals few hybrids and the separate populations maintain their integrity. This information supports the view that these forms should be regarded as distinct species.

Studies by Miss Rosemary Irving-Bell of bacterial symbionts in the testes and ovaries of *C. molestus* were briefly discussed and electron micrographs of the organisms were exhibited. It is possible that they may be connected with Laven's cytoplasmic factors which cause partial sterility between certain populations of *molestus*, but it is also possible that they are connected with observed degenerating oocytes.

S.J. Curry

SOUTH AUSTRALIA

Dr. R. Laughlin, Waite Agricultural Research Institute, has returned from study leave in England. During his stay as an Academic Visitor to the Imperial College Field Station at Silwood Park, Sunninghill, he developed a method to culture *Hercinothrips femoralis* Reuter, in which all stages of the life-history were available for study and manipulation. He also studied internal dye-marking of thrips and found the methods he used were unlikely to be very useful as an ecological method.
Dr. Laughlin attended a conference at the NATO Advanced Study Institute, at Oosterbeek, The Netherlands, on "Dynamics of Numbers in Animal Populations", which he found most stimulating.

P.G. Allen

VICTORIA

During the winter, "Zoo" and Mary Le Souef made their annual nine-week collecting trip, this time to the Northern Territory and the Kimberleys, with further checking of the discovery of d'Apice and Peters of the life history of *Virachola smilis dalyensis* as a major objective. Eggs, larvae and pupae were taken at East Point, Darwin on *Strychnos lucida* (Loganiaceae).

Although Lepidoptera in general were scarce, several specimens of the rare *Danaus genutia alexis* and *Phalanta phalantha araca* were collected. The larva of a lycaenid resembling *Jalmenus eichhorni* was taken at Mataranka, while a somewhat surprising addition to the South Australian fauna was the finding of a skipper that appears to be *Telicota ancilla*, the larva of which was taken near Woomera.

Of other insects, there were several flights of aquatic Coleoptera and Diptera at Daly River and elsewhere, attracted to the black light.

Your Regional Councillor spent two weeks of August in Townsville, on a termite study and collection trip in the company of Dr. Judy Reynolds of Sydney and Bert Wetherly of Canberra.

At the Victorian premiere of the Shell Chemical film "Pesticides in Focus", held on Friday 15 October, several well known entomologists from a range of departments were seen to be in deep discussion while absorbing the various emulsions.

D. Howick

TASMANIA

Meetings: There have been two meetings of local members:

1. 7 October - a talk by Dr. J.P. Spradbery on social wasps. Those present found the talk interesting and informative. Dr. Spradbery is comparing the biology of the European wasp in Tasmania with that in England, where he has studied it in some detail.
2. 11 November - a meeting was arranged to show two films: (a) The Biological Control of Insects, and (b) Birth of the Red Kangaroo. Similar film evenings are planned for the future.

Visitors:

In mid-October Mr. J. Ridsdill-Smith and Dr. R. Milner, of CSIRO at Armidale, visited Tasmania to look at the *Adoryphorus couloni* problem in northern districts with officers of the Department of Agriculture with a view to identifying insect diseases present. A marked decline in the population of *Adoryphorus* recently is thought to be due to waterlogging of the soil in spring.

Another visitor, in November, was Mr. J. Gilmour of the Forest Research Institute, Rotorua. He is a forest pathologist and has been associated with Sirex research in New Zealand.

K.L. Taylor

AUSTRALIAN CAPITAL TERRITORY

Mr. Richard R. Blume, of the Entomology Research Division, U.S. Department of Agriculture, Kerrville, Texas, visited Canberra with his wife for two weeks from 25 January, to observe the CSIRO Dung Beetle project. Two years ago Mr. Blume received two species of dung beetle from CSIRO for assessment of their potential use in North America, which has a bovine dung accumulation problem not unlike that in Australia. After a detailed inspection of the procedures used in Canberra for quarantine and mass-breeding of the beetles, Mr. and Mrs. Blume visited tropical Queensland to see the action of the beetles at various field release sites.

P. Ferrar

NEW SOUTH WALES

Mr. M.J. MacQuillan, Plant Science, Research and Development, Technical Specialist with Dow Chemical (Aust.) Ltd., visited Midland, Michigan, U.S.A., last October to attend the Dow Chemical Company Agricultural Department Orientation Programme. Mike is responsible for the Company's programme of investigating uses for new insecticides and their registration. While in America he also visited the Dow Chemical Research Laboratory at Walnut Creek in California, to check on the current development of new insecticides.

F.J.D. McDonald

QUEENSLAND

Dr. John Smart, of Zoology Department, University of Cambridge, whose collecting trip to the Melanesian Arc islands was mentioned in the last Bulletin, had the misfortune to contract dysentery in the New Hebrides and returned home to recuperate. He is hopeful that with Mrs. Smart (Elspeth McConnachie, protozoologist at the Molteno Institute, Cambridge) he will be able to come to Australia about April, to do some research on *Mastotermes* at the James Cook University, Townsville, and to attend the International Congress.

E.N. Marks

Visitors to the north

29 September: N. Kamper, of Bundeena, N.S.W. (ex Department of Agriculture, N.S.W.) called on me. He was interested in some species of Coleoptera.

9-16 November: Giles Roche, a Chartered Accountant and F.R.E.S. of Singapore, was in the area as part of a three months' holiday-cum-collecting tour of Australia. I took him on one trip, but for the most part he was working solo. He was collecting Hymenoptera for himself and Hemiptera for his brother in the Seychelles.

9 December: David McAlpine and Geoff Holloway of the Australian Museum, and Don Sands of CSIRO, arrived from Sydney and departed the following day for Iron Range by four-wheel drive vehicle. They expected to return by ship from Portland Roads after about six weeks collecting.

28 December: Paul Zborowski and a friend arrived at 10 p.m., after a seventeen hour drive from Marlborough where they had been held up by floods caused by cyclone "Althea" on their journey from Hornsby, N.S.W. They caught the early morning plane the next day to spend a week collecting at Iron Range before returning to collect from Cairns southward. Their main interest is Coleoptera.

J.G. Brooks

PAPUA NEW GUINEA

Mr. T.V. Bourke, Chief Entomologist, Department of Agriculture, Stock and Fisheries, Popondetta, attended the Commonwealth and States Entomology Committee meeting in Perth during October.

Mr. W.T. Chellapah, F.R.E.S., formerly of the Parasitology Department, University of Singapore, where he worked mainly on animal filariasis, has taken up duty as Entomologist-in-Charge within the Malaria Service Section of the Department of Public Health, Konedobu.

Mr. B. Gray, Entomologist-in-Charge, Department of Forests, Bulolo, returned in October from an overseas study tour at the universities of Penang and Washington.

Dr. P.M. Room, who recently gained his Ph.D. for studies of the relationships between insects, mistletoes and cocoa in Ghana, has joined the Department of Agriculture, Stock and Fisheries as Entomologist. He is based at Popondetta and will work mainly on the ecology of cocoa insects.

Rev. Dr. E.H. Schoenig, SVD, Chairman of the Biology Department of the University of San Carlos, Cebu City, Philippines, commenced a visit of several months in November. He is particularly interested in the geographical and vertical distribution of mosquitoes of the genus *Aedes*.

Mr. and Mrs. J. Sedlacek recently retired from the Wau Ecology Institute to Brisbane. Mr. Sedlacek was for many years in charge of the Bishop Museum New Guinea Field Station, and he and his wife made many valuable collections, particularly of beetles, for that institution.

T.L. Fenner

NEWS FROM AFFILIATED SOCIETIES

ENTOMOLOGICAL SOCIETY OF QUEENSLAND

Activities since the last report include the following:

11 October, 1971. - Main business was an address by Mr. Harry Standfast of the CSIRO Division of Animal Health entitled "Some Entomological Aspects of Ephemeral Fever of Cattle".

8 November, 1971. - Main business was an illustrated address by Mrs. Margaret Spencer entitled "Investigation of a Malaria Mosquito Problem on Bougainville". During March, April and May, Mrs. Spencer and her husband carried out an anopheline survey of the Bougainville Copper Project area on Bougainville Island in Papua New Guinea.

6 December 1971. - Notes and exhibits. Evidence of the continued popularity of this form of meeting could be seen on the attendance sheet - 56 names. At the meeting, the President presented book prizes to winners of the Society bursaries in the 1971 Science Contest for school children in Queensland. Their winning exhibits were displayed.

E.M. Exley

[Editor's Note: Interesting and detailed accounts of these meetings can be found in recent News Bulletins of the E.S.Q.]

EXPEDITION TO THE NEW HEBRIDES

The Royal Society of London - Percy Sladen Expedition to the New Hebrides, very ably led by Dr. Ken Lee of the CSIRO Soils Division, Adelaide, completed four months' work in the archipelago towards the end of October 1971.

The work on all fronts was very successful, and despite some holdups due to weather all the planned aims were achieved. We had our main base in the British Residency grounds in Vila on Efate Island, from which we sallied forth daily to work on various parts of Efate during our regrouping periods between the more major trips.

The expedition began with a week in the field under diluvial conditions at Narrabut in the Mt. McDonald area of Efate, and then the southern group of islands was visited. We were on Aneityum from 18-25 July, splitting into three groups: one in the Leghland kauri forest, one at Anelgahaut on the coast, and another near the southern end of the island. Advance parties began to arrive in Tanna on 23 July, and we left on 1 August. We had great difficulties there in collecting away from our base camp at Lenakel due to Tom Thumb cargo cult influences. On the afternoon of 1 August the party was installed for two weeks' work on Erromanga, splitting into two camps with interchanging personnel. The inland camp was in kauri forest, the coastal one at Ipota.

After a spell in Efate, Sunday 22 August saw us off to Luganville on Espiritu Santo, thence by bus to Port Olry and by boat to Malai village in Big Bay. From then to 18 September we achieved the second major objective of the expedition, by successfully getting all scientific personnel and our numerous Melanesian assistants and porters 44 km inland, with innumerable crossings of the Apouma River, high up to Nokowoula village at the base of Tabwemasana, the highest peak in the New Hebrides. We got them all back, too, though somewhat damaged in some cases.

From 27 September to the middle of October the expedition was in two sections, one in east and one in west Malekula.

Entomologists who took part were:

Dr. Ken Lee and John Buckerfield of CSIRO Soils Division, working on soil structure and soil invertebrates; Dr. Adrian Marshall of Aberdeen, on ectoparasites of birds and bats (and of humans at Nokowoula); Gaden Robinson of Suva and Durham, on nocturnal Heterocera. These members were with the expedition for the whole period.

Gordon Gross of the South Australian Museum, working on insects of shrubs and trees, with special emphasis on Heteroptera. Gordon came after Narrabut and left before Malekula.

Dr. Jack Edgar of CSIRO, Melbourne, working on pheromones and attractants in butterfies, particularly *Euploea*, was with us in the southern islands.

Dr. Paul Cochereau of ORSTOM in Noumea, who took over from Gordon Gross in Malekula, was looking especially for parasitic Hymenoptera.

Great numbers of insects were collected; most (except many of the Heterocera and the parasites) will be lodged in South Australia, where setting up is already under way. Gaden and Gordon were thrilled to get three specimens each of a form of *Parthenos sylvia*, a butterfly not recorded from the New Hebrides, and chagrined to see but not get close enough to snare a papilio similar to *Graphium sarpedon*, also not recorded from the archipelago.

G. Gross

IN THE STEPS OF KOEBELE

A classic in the history of biological control was the successful use of the natural enemies, the ladybird *Rodolia cardinalis* and the parasitic fly *Cryptochaetum iceryae* to control the cottony cushion scale *Icerya purchasi* in California. Doutt (1964) describes the visit of A. Koebele to Australia in 1888 to secure parasites of the scale, which was then threatening ruin to the California citrus industry. Koebele visited the Adelaide area and sent to California stocks of *Cryptochaetum* to supplement those previously forwarded by Frazer Crawford, and also stocks of *Rodolia cardinalis*, with the outstanding results that are now well-known to all.

I have made bioecological studies of the scale and its two parasites in three different climatic regions of southern California during two years in the course of a study for my Ph.D. dissertation, and this work has nicely demonstrated that the parasites still exert a high degree of control over the scale, the fly being more important on the coast and the beetle in the desert areas. Between the coast and the desert the two agents compete with one another, with varying degrees of success according to seasonal conditions.

I cherished an ambition to round off my studies by retracing Koebele's journey in Australia to see the scale and its parasite and predator in their natural surroundings, and an opportunity to do this arose in August 1971 when I was able to attend the Twelfth Pacific Science Congress in Australia. With funds made available by CSIRO I was able to cover the same ground as Koebele, but by jet instead of by train. Like Koebele I had little luck in Sydney and Melbourne, so I proceeded to Adelaide which Koebele "considered... the best field to obtain the material". Sure enough, here I found small scattered colonies of the scale, showing evidence of *Cryptochaetum* parasitization just as they do at the corresponding time of the year in California, and the presence of an old *Rodolia* pupal skin in one infestation gave a hint that the activity of this predator may have superseded that of *Cryptochaetum* in the previous summer, just as occurs with seasonal changes in Californian coastal areas.

It is obvious that a study of the interactions of the three organisms in the Adelaide area would be very rewarding, and the results would permit meaningful comparisons with my studies in California.

REFERENCE

Doutt, R.L. (1964). The historical development of biological control. *In* "Biological Control of Insect Pests and Weeds." Paul DeBach (ed.) Chapman and Hall - London.

José R. Quezada,
Department of Biology,
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SECOND ENTOMOLOGICAL SURVEY TO "MILLSTREAM", W.A.

1 - 27 APRIL, 1971

The first survey of the Millstream area, in October, 1970 (News Bulletin February 1971), was followed by a second in April 1971. Not only was there a chance of picking up species that had been missed during the first visit, but it seemed likely that a rather different fauna might be found there after the summer rains, and the survey took into account the possibility of such seasonal changes. As before, the survey was conducted by staff of CSIRO Division of Entomology, with assistance from Hamersley Iron Pty. Ltd.

LOGISTICS

The arrangements followed the pattern established successfully during the first survey. The leader, Mr. M.S. Upton, together with Mr. N.J. Roffey-Mitchell, travelled overland from Canberra to install a field laboratory in the area. Four taxonomists in succession then spent periods of approximately one week each in the area: Dr. E.F. Riek (Hymenoptera and aquatic insects), Dr. D.H. Colless (Diptera), Dr. I.F.B. Common (Lepidoptera), and Dr. K.H.L. Key (Orthoptera). Also, Mr. M.M.H. Wallace (Acari and Collembola), from CSIRO W.A. Laboratories, accompanied Dr. Riek on the inward journey and spent several days at Millstream, and Dr. Key accompanied the party on part of the homeward journey. Operations at Millstream followed the pattern described previously.

CONDITIONS AT MILLSTREAM

The wet season had been particularly intense and continued late, ending not long before the survey commenced - in fact, the journey from Perth provided an interesting (in retrospect) experience of a tropical cyclone. At Millstream there was evidence of recent, heavy flooding; the river level was higher, with the water following new and more extensive channels, and the Crossing Pool was this time a misnomer, the ford there being impassable. Consequently most activity was restricted to the south bank of the river, but this caused little or no hindrance to survey activities.

RESULTS

The wet had, as expected, caused certain changes in the fauna. For instance, in the Diptera, a number of species with aquatic or semi-aquatic larvae were greatly reduced in numbers, or were absent, presumably due to the flushing effect of the floods. On the other hand, several groups not directly associated with ground water showed an expected seasonal increase.

Generally it seems unlikely that more than a few species are unique to the Millstream area, but the situation is not easy to evaluate. Such species are likely to be those that depend either on the water in the pools or on the associated vegetation.

Many of them are certainly undescribed, but it is always possible that they may occur elsewhere in the north, since so much of the area remains unsurveyed.

There are, however, some species that seem likely to be unique to Millstream. The dragon-flies (Odonata), for instance, are a fairly well surveyed group, and six of eight species and sub-species have been found nowhere else. Likewise, two species of aquatic beetle were found, belonging to the Helminthidae, a family previously known only from the mountains of eastern Australia. Since these beetles require running water, they must have a very limited distribution in the arid north-west. Two undescribed genera of mayflies (Ephemeroptera) also seem to be unique to the area. These and other species may in fact be at present more widely distributed, perhaps through all the gorges of the Hamersley Ranges, but the Millstream pools may provide the crucial refuge to which a species can retract for survival during periods of extreme drought.

Apart from the uniqueness or otherwise of individual elements of the flora and fauna, it is worth noting that the whole Millstream ecosystem is itself unique, or at least very rare, as a biological phenomenon. It is remarkable to find such a concentration of so many floral and faunal elements in one area, not necessarily unique to it, but elsewhere existing in more dispersed and less accessible habitats. In a way it provides a living museum of a very striking flora and fauna.

FUTURE PROSPECTS

Information supplied by the W.A. Public Works Department indicates that "it is not expected that the present development (of bore fields) will dry up the springs, nor the pools in the river, although there could be some reduction of the flows in these areas. Full exploitation of the aquifer would of course prevent overflow to the springs and the pools". The implications are obvious. Exploitation up to a certain limit is unlikely to have any marked effect on the fauna, but if through miscalculation or deliberate policy that limit is exceeded, some elements of the fauna, including any that are unique, are bound to be affected. The degree of faunal loss would depend on the degree of exploitation. At the extreme we could expect a reversion to the conditions now existing upstream, though one could envisage situations of only partial loss, with some pools persisting, but reduced in area and mainly stagnant. The latter situation is, however, unlikely to be stable and would be very much at the mercy of climatic fluctuations.

To some people the biological cost of losing the Millstream pools might seem relatively low, involving at most the extinction of a few unique species. To many others, however, the loss of any species is irreparable and to be avoided at any reasonable cost, and this also applies to the whole habitat as an integrated biological unit. Most biologists would agree that preservation of the area, with minimum damage to its physical and biological structure, is to be encouraged, if only as a sign of our civilisation.

M.S. Upton

BOOK REVIEWS

"Australian Insects in Colour" by Anthony Healy and Courtenay Smithers, A.H. and A.W. Reed, 1971, 7 x 7½", 112 pp. incl. 50 pp. in colour, $4.50.

Although two persons are given credit for this pleasant little book a third party deserves equal mention, and here I refer to the publishers, A.H. & A.W. Reed, who, in conceiving and developing the format of their Colourbook Series, have provided an admirable vehicle for the talents of the authors. "Insects" is the most recent in the series which has produced some ten natural history titles over the last five years or so, including "Butterflies" and "Spiders". At a time when the market is being flooded with nature books, many of dubious quality, it is refreshing to see this series maintaining high standards. Authors, in general, have been professional people who can write with authority on their subject and a number have been drawn, as in the present case, from the staff and associates of the Australian Museum. Typographical errors are rare, while the colour printing and binding (Japanese) are excellent.

Animal photography is not easy, and live insect photography in particular is just plain difficult, both from the optical aspect and from the subject cooperation aspect. Anthony Healy has mastered both with the professional skill already seen in his contribution to the companion volume on "Crustacea", and the ichneumon on page 86 is the only shot belonging to the "wings askew and tarsi knuckled under" school of insect photography. A balanced range of subject matter is presented without the usual predominance of showy butterflies and beetles; for the connoisseur there are tipulid eggs, the most photogenic scale insects imaginable and a delightful study of a notonectid regarding its own reflection in the surface film. However, in a book called "Australian Insects..." it is a little disappointing to find that most of the specimens are from around Sydney; the important tropical and desert elements of our fauna go unillustrated.

The text, by Courtenay Smithers, concentrates on giving a general background to the Orders without often mentioning specific Australian species. This was probably a wise decision considering the space available and has given a more utilitarian function to the book, making it more at home in a school library than many of the nature picture books often seen there. Sixteen of the Orders of insects are dealt with, several of the more obscure (even Psocoptera!) being understandably omitted. Surprisingly Siphonaptera are included yet Plecoptera and Trichoptera are absent, possibly for lack of adequate photographic coverage. For a quality book the price is reasonable.

G.B. Monteith

"Advances in Insect Physiology", Vol. 8. by
J.W.L. Beament, J.E. Treherne and V.B. Wigglesworth,
Eds. Academic Press, London and New York, 1971

The eighth volume of Advances in Insect Physiology maintains the high standard set by the previous volumes. Volume 8 contains the following four articles: Effects of Insecticides on Excitable Tissues, by T. Narahashi; Functional Organizations of Giant Axons in the Central Nervous Systems of Insects: New Aspects, by I. Parnas and D. Dagan; The Variable Coloration of the Acridoid Grasshoppers, by C.H. Fraser Rowell; and The Mechanisms of Insect Excretory Systems, by S.H.P. Maddrell.

The authors have produced constructively critical reviews which not only give useful statements of present knowledge but also indicate possible directions for further research.

"International Journal of Insect Morphology and
Embryology". Pergamon Press Ltd., Headington Hill
Hall, Oxford OX3 OBW England. £12.00 p.a.

The first issue of this new quarterly journal appeared in September 1971 with a series of high quality papers. The journal will publish original papers on all aspects of the gross morphology, paleomorphology, macro- and microanatomy and ultrastructure of insects, and similar studies of other related arthropods which have a direct bearing on our understanding of insect morphology. In addition to descriptive embryologic and post-embryologic papers, reviews developing new concepts, hypotheses and theories will be accepted. A limited number of scientific notes and book reviews will appear in each issue.

APPEAL FOR MATERIAL AND INFORMATION

Professor R.L. Post, Curator of the Insect Collection at North Dakota State University, U.S.A., has written to ask if any member could send him a few specimens of the giant thrips, *Acanthinothrips spectrum*, which he believes is found on eucalypts in Australia. In return he is willing to send some specimens of thrips from North Dakota, or one of several publications of the university's Department of Entomology [details of these publications can be obtained from the News Bulletin Editor].

Professor Post at one time studied some insects collected by I.M. Lea on Lord Howe Island. He has heard that rats from a sinking ship at one time overran the island and exterminated some endemic insects and snails, and would be pleased to hear from any member who could provide more information about this incident. He would also be glad to receive a short biographical sketch on the late Dr. Lea.

Anyone who is able to help in these matters should contact Prof. R.L. Post, Department of Entomology, North Dakota State University, Fargo, N. Dakota, 58102, U.S.A.

ERRATA

Volume 7, No. 4:

p. 131 - 5th line from foot of page, for "northern" read "southern".

2nd line from foot of page, after "numbers" insert "in Chatswood, North Ryde and many othern northern suburbs."

EDITOR'S NOTE

Material for the May News Bulletin should reach me if possible not later than 1 April. However, material will be gratefully received at any time, and the sooner it arrives the easier is the task of editing.

P. Ferrar

OCCASIONAL PUBLICATIONS
OF THE AUSTRALIAN ENTOMOLOGICAL SOCIETY

HANDBOOK NO. 1

"Methods of Collection and Preservation of Insects"

by

K.R. Norris

CSIRO Division of Entomology

This Handbook is indispensable for all, whether amateur, professional or student, who collect insects.

40 pp. Price: $A1.00

MISCELLANEOUS PUBLICATION NO. 1

"The Entomology of Citrus in New South Wales"
(W.W. Froggatt Memorial Lecture)

by

P.C. Hely

N.S.W. Department of Agriculture.

20 pp. Price: $A1.00